FOREWORD

This Guide has been prepared to assist in implementing one of the recommendations made by the Expert Committee on Nursing at its first session in February 1950.[1] This recommendation suggested that the World Health Organization urge each of its Member Governments to undertake (or continue) a study of:

" (1) the existing supply of each type of nursing personnel (including midwives, feldshers [dressers], and other specialized groups engaged in nursing duties), and of various types of auxiliary nursing personnel;

(2) the estimated number of each type of personnel needed in all categories of employment, based on existing and prospective health programmes;

(3) the factors which interfere with securing candidates for training of various types;

(4) the effectiveness with which nursing resources are used."

This recommendation was developed from the considerations stated in the same report:

" The committee considered the lack of nursing personnel, which is world wide. Medical and public-health authorities contend that the lack of nursing personnel hampers progress of practically all health programmes. The quantity of available nursing services varies among countries from those with none whatever for millions of people to those with one nurse for approximately each 400 persons. The latter ratio applies in countries with highly organized health services; even in these countries, however, hospital beds are unused and new health programmes are impeded for want of nurses.

" Nurses are needed in greater numbers than other categories of health workers because they have direct, individualized, and lasting contact with people, sick and well. In this sense, nurses are the final agents of health services.

" Provision of nursing personnel is not keeping pace with advances in medicine and public health. Established health programmes, as well as new programmes, call for measures to increase and improve the supply of nurses and for better use of the supply. This increase in demand will be accelerated by further economic development, industrial expansion, and elevation of standards of living within countries."

In the preparation of the Guide, the author spent November and December 1950 at the headquarters, Geneva, of WHO, during which time she conferred with many members of the Secretariat. To assist her, an informal working-group was formed, composed of members of the Secretariat and, in addition, Dr. Cora du Bois, Social Scientist (formerly

[1] *World Hlth Org. techn. Rep. Ser.* 1950, **24**, 10, 4

Chief, Southern Areas Branch, Division of Research for the Far East, Department of State, Washington. D.C.), Miss Yvonne Hentsch, Chief of the Nursing Bureau of the League of Red Cross Societies, and Miss Marjorie Duvillard, Director of the Bon Secours School of Nursing, Geneva. Advantage was taken of the presence in Geneva of Dr. du Bois and of Dr. A. Stampar, Professor of Public Health and Social Medicine, University of Zagreb. The draft Guide was circulated, for criticism, to members of the WHO Expert Advisory Panel on Nursing and to the Regional Offices of the Organization. The Guide was used during 1951 and 1952 in studies of two countries in which WHO assisted. Valuable suggestions from all these sources were of assistance in the final revision of the Guide. Our thanks are due to all those who contributed in large measure to the success of the project.

INTRODUCTION

This Guide has been designed to assist nations to study their own nursing services [2] in their broadest aspects. It is recognized that nursing is an essential component of the total health programme and that therefore any study of nursing and plans for developing nursing services are only one part of a broader health-service plan. The plan for nursing must, of course, fit into, and be part of, the total scheme.

It is obvious that no one guide can be prepared which would be adequate for all nations : modification and adaptation to the situation in each country will be essential. Because this Guide has been prepared for use in many different countries with many different situations, no attempt has been made to give definite standards for nursing care or nursing programmes. The study may be conducted by some countries in the manner suggested here, while other groups may use the outline only as a starting-point for discussion and may develop their own study methods.

The type of study outlined in this paper will give a general view of the nursing situation in the area studied, will point to the most urgent problems, and will give factual data on which the nation can base its plans for the future. The study may reveal that immediate action can be taken, or it may point to the need for further, more exhaustive, study of some phase of nursing service or education.

The desire to make a study may arise in many different ways. For example, it may originate within a school of nursing which wishes to know whether it should start a training programme for auxiliary nursing personnel. The nurses' association may wish to know what conditions interfere with recruitment for nursing. The health ministry may be planning to expand its health programmes and may wish to know what kind of nursing staff will be needed, and how to get it. Sometimes there is just a general wish to find out " how to improve the nursing situation ".

Wherever and however the idea of a study starts, the first step is to define as specifically as possible the questions which are to be answered. The purposes of the study designed to answer the question regarding the

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[2] In this Guide the terms " nursing service " and " nursing personnel " include all types of nursing service and all persons performing on a regular basis any nursing duties whatsoever for which they receive compensation.

establishment of a new school for auxiliary nurses, as mentioned in our first example, might be :

(*a*) to determine whether more trained auxiliary nursing personnel are needed ;

(*b*) to determine whether more schools for auxiliary nursing personnel are needed ;

(*c*) to determine whether this school is located where a new school for auxiliaries is needed ;

(*d*) to determine whether this school is equipped to start such a training programme.

The purposes of the study which originates with the nursing association might be :

(*a*) to determine whether there are sufficient persons completing the years of schooling required for entrance to a school of nursing ;

(*b*) to determine whether qualified young women are choosing other professions in preference to nursing ;

(*c*) to determine whether schools have programmes and living arrangements which attract young women ;

(*d*) to determine whether working opportunities and conditions for graduate nurses are as good as for teachers, social workers, and others in similar types of work.

The purposes of the study arising out of the problem of the expanding programme of the health ministry might be :

(*a*) to examine the nursing services supplied in the existing health programmes as a basis for planning for expansion ;

(*b*) to determine the exact functions that nursing personnel would have in the new programmes ;

(*c*) to determine the kind of training the nursing personnel would need to carry out these functions ;

(*d*) to determine which of the existing training programmes should be expanded to meet the needs for the additional personnel ;

(*e*) to determine what action would be needed to expand these programmes.

The desire to find out " how to improve the nursing situation " might give rise to the following aims :

(*a*) to determine the existing deficiency in the nursing situation in respect to numbers of nursing personnel of various categories available in relation to existing demand and future needs ;

(*b*) to determine what proportion of the existing nursing personnel in all categories are prepared for the jobs they are doing;

(*c*) to determine whether the shortages of nursing personnel, if they exist, are due to lack of recognition of the need for nursing positions, or to unsatisfactory working conditions which result in difficulty in recruitment for already established positions.

Having clarified and stated the purposes, we can now proceed to determine what facts are needed to answer the questions, and what methods are to be used in conducting the study.

CHAPTER 1

CONDUCT OF THE STUDY

A study of the type described in this Guide is useful only if it produces some kind of action. In certain countries this can be obtained best through group participation in the study. Where this is so, committees representing the nursing, public-health, hospital, medical, and education fields, and other community groups, should be established to direct the investigation. This is particularly important in countries where the people are accustomed to taking part in the formulation of programmes, and where experience has shown that they will accept programmes more readily when they have helped to design them.

However, some countries have developed other methods for putting programmes into action : for example, certain groups may have recognized responsibilities for leadership, and individual initiative in other groups may not be required or expected. In many countries it is customary for the government to initiate and conduct this type of study, making full use of information and opinion solicited from interested agencies in the form of written or oral " evidence ".

A careful review of existing patterns for achieving results should be made and those methods which have proved workable in the community in the past should be used. The committee method has been elaborated here because it has worked well in the only countries where this type of study has so far been undertaken.

Committee Organization

One pattern for committee organization is given here merely as a suggestion. Some countries already have well-developed patterns which they will wish to follow ; others may use this as a guide, making suitable adaptations for the situation in their countries.

No matter by what names these committees are known, and regardless of the method of appointment, there will probably be a need for a small working, or executive, committee, and a large committee with broad community representation, here called the advisory committee.

The functions of each committee should be decided upon as early in the planning of the study as possible and should be put in writing.

Executive committee

This committee should comprise nurse leaders from each major field of nursing, and should number not less than six nor more than fifteen members. In addition to persons co-opted for the value of their individual contributions, the following groups may also be represented:

Health Department
Hospital administration
Education

The members of this committee should be able to spend some time on the administration of the study; they should be people with known interest in the subject, some pertinent knowledge, and administrative effectiveness. This committee may be given responsibility for the administration of the study; its functions might include:

(1) obtaining the services of a qualified director of the study (see page 14 for discussion of the appointment of a director);

(2) inviting members of advisory committee (see page 13); (in some instances the advisory committee will be appointed first, perhaps by the government, and the advisory committee will appoint the executive committee);

(3) arranging for office space, secretarial service;

(4) arranging for statistical assistance, if needed;

(5) arranging for adequate publicity;

(6) obtaining necessary funds;

(7) informing nursing, medical, and hospital groups regarding survey plans;

(8) making appointments for interviews and field visits for the director and any field assistants;

(9) appointment of technical subcommittees when indicated;

(10) reviewing recommendations of technical subcommittees made on the basis of the surveyor's findings, and incorporating these into the overall recommendations;

(11) discussing recommendations and formulating plan of action with advisory committee.

These functions need not always be performed by an executive committee; it might be advisable for some, or all, to be undertaken by established agencies or by individuals.

Advisory committee

This may be a large committee representing as many groups as possible who are already, or might potentially be, interested in health problems.

The broader the representation on this committee, the greater the probability that recommendations will be carried out. If possible, all points of view should be represented. The improvement of nursing service affects the people served and is therefore their concern as much as it is the concern of the nursing profession itself. The community has a recognized responsibility for providing funds and facilities for this purpose, and responsibility for the staffing of institutions should also be recognized as its concern. An advisory committee of the nature proposed would give the representatives of the community a part in planning the services required.

The functions of the advisory committee might include :

(1) advising on the scope of the study ;

(2) advising on the general methods of procedure ;

(3) assisting in the formulation of recommendations ;

(4) assisting in the formulation of plans to execute the recommendations ;

(5) transmitting information on the conduct, progress, and results of the survey to the groups they represent.[3]

The following list of groups from whom representatives might be drawn is a suggestion only—it cannot cover the great variation in the types and names of groups found in various countries :

Nursing groups :	Nurses' Association
	National Ministry of Health
	Government nursing schools
	Other nursing schools
	Hospital Nursing Administration
	Nurse leaders from any field
Related groups :	Ministry of Health (Minister or medical officer)
	Ministry of Welfare
	Schools of medicine
	Hospital administrator
	Local Health Officer
	Higher education
	Secondary education
	Vocational education
	Voluntary health and welfare organizations (including Red Cross, etc.)

[3] In countries where the survey is a government undertaking, this may not always be possible as proceedings may have to be confidential until the results are published.

General community groups: Religious institutions
Auxiliary religious groups
Clubs, guilds (men's, women's, other types)
Press and Radio
Labour
Industry
Agriculture
Government
Other leading influential citizens or groups

The executive-committee members will probably also be members of the advisory committee. It is suggested that at least the chairman of the executive committee be on the advisory committee.

Technical committees

Countries which have highly complex services may wish to set up technical subcommittees to work on single aspects of the total problem. These committees should usually be small, comprising three to five individuals, who need not be members of either the executive or advisory committees, although usually the chairman of each committee is also on the executive committee. Technical subcommittees might be set up to study one or more fields such as:

(*a*) public-health nursing;

(*b*) tuberculosis nursing;

(*c*) mental nursing;

(*d*) industrial nursing;

(*e*) general hospital nursing;

(*f*) nursing education.

Record of Meetings

It is very helpful if minutes of all meetings are kept; the minutes of each committee meeting should, if possible, be sent to each of the other committees immediately after the meeting.

Appointment of Director of Study

The director of the study should be able to give full time to its organization. He, or she, will most probably be a nurse, although qualified persons from related health or welfare fields might be chosen, provided that a generous amount of nursing consultation is available. The director of the study should have had some training in social research methods,

and should be able to work well with individuals and groups. It has been found to be more successful if someone from outside the area under investigation can be obtained. If only one State or province of a country is being studied, a qualified person from another State or province in the country might direct the study, or a staff member of an international organization, who satisfied the suggested qualifications, might be obtained.

It will be very helpful if the assistance of a statistician or social scientist, trained and familiar with field research, can be made available. This person should help in the planning stages, and should not be called in only at the end to help analyse the material.

Defining Terms

Before decisions can be taken regarding the specific areas to be investigated and the data to be collected, all terms likely to be used in the study and about which there is any possibility of confusion should be defined: for example, each category or type of nursing personnel, types of hospitals or health services, specific types of nursing functions, etc.

The Expert Committee on Nursing made the following statement regarding the different types of nursing personnel: [4]

" *Clarification of terms and functions*

" The discussion was clarified by decision to use the word ' nurses ' to pertain to the workers within any particular country who supply the most exacting, comprehensive, and responsible care of a nursing nature which is available in that country. Wide national variations are recognized. In countries with highly organized health programmes, ' nurses ' include—in addition to those practitioners who give exacting, comprehensive, and responsible care to people, sick and well—those competent in research, consultation, education, and the planning of health programmes.

" The term ' auxiliary nursing personnel ' indicates those who give, in comparison, less exacting care which supplements that given by nurses, or those whose duties are confined to some particular phase of nursing care (e.g., vaccinators). In general, nurses teach auxiliary personnel and supervise their work. In some countries there is an intermediate group of workers, in which classification are trained practical nurses, assistant nurses, and others, variously named. For the sake of simplicity in this report, however, these workers are included among auxiliary nursing personnel."

For the purposes of this study it will probably be necessary to define the types of nursing personnel in more specific terms, covering (1) a description of the type of work performed, (2) the amount of general education, and (3) the amount of nursing education required for each category. (See annex (page 31) for sample definitions of this type.)

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[4] *World Hlth Org. techn. Rep. Ser.* 1950, **24**, 4

CHAPTER 2

QUESTIONS FREQUENTLY ASKED

Certain questions which occur frequently have been listed below. As has already been said, any one of them may be the starting-point of the study, but as its plan develops many of the others listed will arise in the minds of the planning group. The study will then be designed to answer as many questions as possible. While these are the most common questions in some countries, they are by no means all-inclusive. Almost every country will wish to omit some, add others, or change the emphasis on those presented.

Present Nursing Personnel

Number

(1) (*a*) How many nursing personnel in each category, as previously defined, are now actively practising in the country?

(*b*) How many are inactive (by the same categories)?

(It is practical to count the number of inactive nurses only if there is some system already established for locating them. In some countries nurses are encouraged to renew their licences or registration whether or not they are working.)

(2) How many of each category are working in each field of nursing?

Hospital nursing [5]
- general hospitals
- tuberculosis hospitals (or sanatoria)
- mental hospitals
- chronic hospitals
- children's hospitals
- other hospitals

[5] Whether the question on the number of nursing personnel in hospitals will be broken down as it is in this list, or whether the total in all hospitals will be asked without any subdivisions, will depend on such factors as whether:
(*a*) there are special hospitals for these various types of patients;
(*b*) nursing personnel in these special fields are prepared differently;
(*c*) there are recruitment problems in these special fields;
(*d*) other local reasons exist.

Nursing education (nursing educators in schools of nursing)
Public-health nursing
    health department
    private agency
School nursing
Industrial nursing
Private nursing
Military nursing
Midwifery
    hospital
    domiciliary
Other

(3) How many of each category of nursing personnel are employed by each category of employer ? [6]

Government (central or local)
    general hospitals
    tuberculosis hospitals (or sanatoria)
    mental hospitals
    chronic hospitals
    other hospitals
Public health (or community, combining hospital, and domiciliary and clinic)
School
Non-governmental agencies
    general hospitals
    tuberculosis hospitals (or sanatoria)
    mental hospitals
    chronic hospitals
    other hospitals
    domiciliary services
    industry
Foreign companies (by name)
Self-employed (private nursing)

(4) Where are the nursing personnel (by categories) located geographically ? [7]

Urban
Rural

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[6] This question will not arise in many countries where the conditions of employment present no problems in relation to recruitment and placement of personnel. If it does arise, the basic data must contain information about the employer so that the information can be summarized in these terms.

[7] Determining the number of nurses by geographical areas is worth while only if the health programmes are planned on this basis and can be similarly divided.

(Each country or State may require information on location by city, county, province, etc.).

(5) How many in each category are occupying supervisory, administrative, and teaching positions in the various fields of nursing, as outlined under (2) and (3) above (or any such classification used), and geographically, as outlined under (4) above?

Existing methods for preparation of personnel

(1) What preparation (education and experience) have existing nursing and midwifery administrators, nursing and midwifery supervisors, and nursing and midwifery tutors (instructors)? [8]

(2) What preparation have bedside nursing personnel in hospitals of various types, and in public health? [9]

(3) What preparation have midwives? [10]

Population in Relation to Nursing Services

(1) What is the size of the existing population by age-group (e.g., infant and pre-school, school, young adult, older adult, and elderly)?

(2) What is the size of the urban population in each city? What is the size of the rural population in villages, counties, provinces, etc.?

(3) What is the birth-rate?

(4) What is the infant-mortality-rate, by geographical areas?

(5) How many children are enrolled in school?

(6) How many people are covered by how many (*a*) health centres; (*b*) special health programmes?

(7) How many industrial workers are there, by size of plant and hazardousness of industry?

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[8] It is generally accepted in most countries that persons in these positions should have special preparation for their jobs. In very few countries, if any, are the requirements for qualification for these jobs so generally enforced that virtually all incumbents are prepared. Therefore, it is important to find out what percentage of these key people in the whole nursing structure have been prepared according to the approved "standards".

[9] This question will probably not arise where minimum qualifications for performing various levels of nursing duties have been strictly enforced for some years and where all categories of nursing personnel are licensed on this basis. However, in the majority of countries one or more categories of nursing personnel have a sizeable proportion of unqualified workers (according to existing standards in the country). It is therefore important to determine the proportion of qualified and unqualified workers, so that appropriate steps may be taken to better the situation, and so that progress can be measured. In some countries it is already known that there are so few qualified workers that it is hardly necessary to get specific information on the large group of unqualified workers.

[10] In countries where both qualified and unqualified midwives (according to existing standards in the country) are working, it is important to know the proportion of each for the same reasons as given in footnote [9] above.

(8) How many hospital patients (daily average census) are there in general hospitals, tuberculosis hospitals (or sanatoria), chronic hospitals, children's hospitals, etc. ?

Application of Facts Collected

The number of personnel and their preparation, and the size of the population to be served, have now been determined. This information will help in the selection of the standards to be used in estimating the needs for nursing personnel (see page 22).

How well the present nursing-education system meets the needs in relation to number and kinds of nurses it prepares is discussed in Chapter 4, page 27.

CHAPTER 3

FINDING ANSWERS TO THE QUESTIONS

Guides to Collection of Data

The information to be collected will, of course, depend on the specific purpose of the study and the questions which have been raised. The director of the study and the executive committee together may decide what information is needed to answer the questions they have proposed.

Ordinarily, it is wise to collect only the information which will answer or throw light on the specific questions outlined under the purposes of the study. Occasionally, there is a temptation to try to get information for other purposes at the same time, as it seems so easy to ask a few more questions during a field visit, or to add a few more items to a questionnaire. Every effort should be made to avoid doing this as it confuses the objectives of the study and multiplies the cost of analysis. No question should be asked, no table compiled, unless it is clear that it bears upon the problem defined.

Certain information may be very much needed but may be impossible to obtain with sufficient accuracy to be of any use. The very fact that this information is not available is an important discovery. The group may wish to recommend measures to remedy the situation so that future planning can be based on more adequate data.

The availability of statistical and clerical personnel to tabulate the material must also be considered when plans are being made. The value of certain information in relation to the purposes of the study must be balanced against the amount of time and number of personnel needed to collect and analyse it.

Possible Sources of Data

In many countries it will be possible to use already existing data. These data may be found in a wide variety of places, and one of the functions of this study is to gather relevant information together so that interrelationships may be seen. This chapter will suggest methods and sources of obtaining data.

The national departments of health, of education, of welfare, or of labour may have information on the numbers and location of nurses working in their programmes. This might include public-health nurses, school nurses, and industrial nurses if these exist as separate categories ; the number of auxiliary nursing personnel in these fields, and the number of nurses working in hospitals may also be secured from these sources.

The licensing or registration body may be able to supply all or some of the above information in the countries where nurses are required to be licensed and to renew their licences at periodic intervals.

The nurses' association and the association of auxiliary workers, where these exist, may have some information on the number of nurses and auxiliaries of all kinds actively practising in the country.

Recent surveys of health programmes may contain information on the number of nursing personnel engaged in these programmes.

However, in many countries this information is not available and, to obtain even reasonably accurate figures, inquiries from, or visits to, hospitals and health agencies will have to be made. The director of the study may visit a sample of the agencies or, if it is desired to visit all, she may be assisted by carefully chosen representatives from various parts of the country. These need not necessarily be nurses ; if there are no nurses qualified to interpret the questionnaires, teachers or other citizens may be willing to assist.

Method of Collecting Data

The executive committee and the director of the study will probably also make decisions on the method of collecting the information. Practical considerations of distance, travel conditions, and availability of information at headquarters will all influence such decisions. For example, should information be collected through field visits or through mailed questionnaires ? Other things being equal, field visits are generally more satisfactory in obtaining homogeneous data than information received from questionnaires. Conversation is conducive to greater uniformity in the collected data because of the opportunity to clarify and interpret the information acquired. Homogeneity is more difficult to achieve in a questionnaire, despite the most carefully phrased and explicit instructions.

If a questionnaire is unavoidable, satisfactory responses will depend to a large extent on the following factors : a covering letter which embodies the purpose of the study, contains an endorsement from appropriate professional organizations, and gives assurance that the data obtained will be considered confidential ; concise inquiries, clearly defined and easily

answered; and the enclosure of a self-addressed, stamped envelope or postcard.

Sample forms for use in collecting information usually needed in surveys of this general type may be found in the annex. These, or modifications of them, should be tried out in a few places before the forms are produced in quantity and used generally.

Calculating Nursing-Service Needs

The number and preparation of employed nursing personnel of various types have now been determined according to their geographical distribution and fields of nursing. Data have also been collected on the numbers and types of people needing nursing service. The next step is to determine the needs of the State or nation for nursing personnel.

The question of what constitutes adequate nursing service is difficult to determine in the absence of formally established standards based on experimental data. Experimentation is needed both in the countries which are now using so-called standards based on the best practice current there, and in the countries which have not developed any such standards. It is usually inadvisable for one country to use the standards developed in another unless their health problems and social structures are similar.

The type of medical care and health programme may influence the numbers and kinds of personnel needed. The division of work between medical and nursing personnel varies considerably from country to country. For example, in some countries the physicians do all venipunctures, and give all intravenous fluids and medications; elsewhere, nurses do most of this work. The types of procedure the nursing personnel are expected to perform will naturally also influence the numbers of nursing personnel needed and the preparation they require.

Social customs in relation to such factors as breast-feeding of infants, the extent to which families nurse their sick members in hospitals, and the extent to which there are programmes to teach and utilize these family members may also influence the standards of numbers of nurses needed.

The method of determining needs will therefore vary from country to country. A distinction must be made between the theoretical need for nursing services, based on what would be best for the population, and the actual demand for nursing personnel, which may be far below this need. Existing demand in this sense may be measured by the number of budgeted positions, filled and unfilled. Future demand may be estimated by adding the anticipated reasonable expansion in relation to the economy of the country and potential awareness of the need for nursing services. Actual

plans for the expansion of hospital services, and health services outside the hospital, are helpful in calculating future demand.

The following are some of the devices that have been used for calculating nursing-service needs (these often become " standards "):

(1) One nurse per *x* number of people in total population. This is a very crude device and does not ensure an equitable distribution among the various fields of nursing, hospital, public health, etc.

(2) One public-health or community nurse per *x* number of people. This is a useable method for this field of nursing where health services are well developed and distributed fairly evenly over the area. Examples of present standards : (*a*) one country uses a ratio of one nurse to 2,000-5,000 people, depending on the amount of domiciliary care which is included in the programme ; (*b*) another country uses a ratio of one nurse to 4,000 people, exclusive of those giving domiciliary care. The mortality- and morbidity-rates of both these countries are among the lowest in the world. Countries with much greater health problems would " need " proportionately more nurses per unit of population ; many of them, however, have so few nurses now that it would be unrealistic for them to use any such standard.

(3) One public-health or community nurse for each geographical or government unit, such as a county or a village. Where counties or villages are approximately equal in size, this is the same method as calculating by number of population. However, if the geographic or government unit is the usual basis for calculating needs and planning programmes in other fields such as education, it is preferable to use it in determining nursing needs. The same cautions in the use of this standard are indicated as with (2).

(4) One public-health nurse per *x* number of live-births. This is usually used when the main emphasis of the health programme is on maternal and child welfare, or when the health visitor is used almost exclusively in this programme.

(5) One midwife per *x* number of live-births. There is one country which uses the ratio of one midwife to 100 births; in another, the ratio of one midwife to 80 births is used.

(6) *x* number of public-health nurses per health centre of a given size. This is a workable standard to use in countries which are just developing their health programmes. It enables nursing to keep pace with the total health programme. The unknowns in this equation have to be filled in by each country on the basis of experience. The standard may be set above actual practice if the need for more nursing personnel has been demonstrated in the centres operating at the time.

(7) *x* number of nursing personnel per patient in hospitals. This ratio may vary according to type of patient ; care should be taken if this type of formula is used in making comparisons—for example, working weeks may be of varying lengths.

(8) *x* number of hours of nursing care per patient in each 24 hours. The use of this formula instead of (7) enables the number of nurses needed over working days and weeks of varying lengths to be calculated. When working hours are fixed it is much easier to use formula (7).

(9) *x* proportion of a given health budget for nursing service. Experience has shown that certain types of health services will consistently need to spend a given percentage of the total budget on nursing service to enable the programme to function effectively. This is true for hospitals and public-health programmes alike. The percentage allocated to nursing will, of course, differ in each country. However, it may be of considerable interest to compare one programme with another, one State with another, and even one country with another with respect to this factor. Where there are great differences it would be of interest to study the percentage allocation of the total budget to the various activities. The effectiveness of each programme, in so far as it is possible to measure it, could then be studied in relation to budget allocations.

(10) *x* number of " highest level " nurses to *y* number of auxiliaries. This may be a different formula in general hospitals, tuberculosis hospitals, mental hospitals, etc. The formula for public-health work will probably differ from any formula used for hospital nursing.

The standard used for this ratio will vary widely, depending on the history of nursing development in the country and its existing status. Countries in which nursing has been developed the longest generally use the fewest number of auxiliary nurses in proportion to their highest level of nurse. However, there is some indication that the ratios now in use in these countries are not the most efficient. Experimentation is very much needed in this field. In the meantime, each country, after studying the existing ratios, may select a ratio which would appear to be achievable in practice.

The formulae listed above are only examples of ways in which standards are expressed in various countries. The committee will decide which, if any, standards they wish to use, and the number of nursing personnel needed can then be calculated by applying them to the number of the population needing service. For example, one country, in which nursing service is just developing, may decide for the present to use the formula :

10 public-health nurses
4 auxiliary public-health nurses } per health centre serving 100,000 population

There are five health centres each serving 100,000 people in this country, therefore they need :

$10 \times 5 = 50$ public-health nurses
$4 \times 5 = 20$ auxiliary public-health nurses.

This country uses the following standards for hospital nursing :

1 " highest level " nurse
5 auxiliary nurses
} to 20 patients

As the six nurses must not only cover the 24-hour period but must also have time off each week and holiday time, there are never six on duty at one time. In calculating the total number of nurses required to staff the hospital, the length of the working week and holiday time must be taken into account.

The same process is carried through for each group needing service as classified by the committee.

The contribution of student nurses to the total hospital nursing service should be considered.

The number of nursing personnel needed according to the agreed standards has now been determined.

The deficits are quite easily calculated by subtracting the numbers working from the numbers needed. The purpose of the study and the questions which were raised have already determined the method of classification of both the supply of, and the need for, nursing personnel. Deficits will be stated in the same terms.

As it takes from two to four years to train a nurse and a variable amount of time to train an auxiliary nurse, plans for increasing the nursing personnel must be made in terms of the future. This will involve a study of population trends, hospital and health-centre building programmes, and other projected health-service developments.

Nursing needs cannot be determined in terms of gross numbers only ; the preparation required for the various types of posts must also be taken into account. For example, there may be a sufficient number of instructors in the schools of nursing, but perhaps only a small percentage of them have been prepared for their teaching functions. The primary need, in this case, is not for more instructors, nor for more basic schools of nursing, but for courses of study to prepare instructors for schools of nursing.

Some countries will be unable to estimate their nursing needs at the time because their health programmes are in the early stages of development. However, it may be obvious that a great many more nurses, midwives, and auxiliary nursing personnel will be required. The need may be

so great and so far beyond the capacity of the country to meet in the immediate future that it is unnecessary at this stage to make precise estimates regarding its extent. An estimate of the number of positions which will be available in a given number of years in the future could serve as the basis for planning the expansion of the training programme—a project which might well be the first step, and which will be discussed in more detail in the chapter on nursing education (see page 27).

The above discussion has been based on the assumption that all countries need more nurses, but this may not be true in every instance. The primary need in some countries may be better utilization of the existing nursing personnel rather than an increase in numbers. This overall study might point out the need for intensive studies of nursing activities with a view to reducing waste of nursing skills.

CHAPTER 4

HOW ADEQUATE IS THE EXISTING NURSING-EDUCATION SYSTEM ?

Both quality and quantity must be considered in planning to meet the needs for nursing personnel. Therefore, the existing system of nursing education in the country must first be examined both quantitatively and qualitatively before a clear picture of needs can be drawn.

The responsible role of the nurse in modern health programmes makes it essential that she should have adequate preparation.

" More and more nursing has become not only an art but *an applied science*. As a branch of the science of medicine it necessarily requires for its safe practice the application of scientific principles and also the use of those methods of accurate observation and logical reasoning which are demanded of all workers in scientific fields." [11]

With adequate preparation she can direct the work of auxiliary nursing personnel so that they contribute the maximum amount to the health programme.

Each country will first wish to define each type of nursing-education programme in progress at the time. These will be grouped according to the category of nursing personnel under training, as defined earlier in the study. It is essential to lay down the functions which these various categories are expected to perform.

Nursing Education in Relation to Educational and Social System

Before studying the existing nursing-education system in detail, it is important to see how it is related to the entire educational and social system of the country, and to the population trends. The numbers of young men and women in the age-group 15-30 in relation to the numbers of each sex finishing specified years of school will be an indication of the existing level of general education. These data, together with the numbers of each sex entering schools of nursing and the numbers entering similar professions, such as medicine, social work, and teaching, will reveal essential facts about the source of supply of nursing personnel. If an entrance requirement to the schools of nursing is 11 years of schooling and it is

[11] International Council of Nurses, Committee on Education (1949) *The basic education of the professional nurse*, London

found that very few women complete this period, it is obvious that recruitment efforts will be of little use. Either the schools must wait until higher education for women is more generally accepted, meanwhile assisting in the efforts of others in the country to speed the process, or they must temporarily reduce their entrance requirements. If, however, they find that nursing is getting only a very small proportion of those completing the required schooling, they may search for the reasons, and try to correct whatever conditions in nursing may be discouraging. The necessity for this is even more clearly apparent if it is found that a larger proportion, in relation to the respective needs of these professions for personnel, is going into other health professions. These figures, if obtained for five to ten previous years, may be helpful in determining the trend.

The total number of persons in various age-groups can probably be obtained from the national department responsible for the census; the number of men and women completing various levels of schooling can probably be obtained from the national department for education; and the number of students entering schools of nursing may be obtained from the schools themselves. Sample form IX in the annex is merely a suggestion as to how this material might be tabulated so that the pertinent facts may be easily seen.

Nursing Schools

Information regarding the schools of nursing themselves may be available in one of the national offices or it may have to be collected by visits to the schools. Where there is a large number of schools in the country, it may be advisable to visit only a sample. If any detailed report is to be made regarding the nursing-education programmes, several days should probably be spent in each school. The limitations of time and money may be the controlling factors in the decision regarding the extent to which the schools will be studied in this overall survey. The following information might be obtained without an extended study of each school.

Administration

(1) Control of school—i.e., government, hospital, Red Cross, church, university, etc.

(2) Is there an independent board of directors or advisory committee for the school? What is its function? How often does it meet? What groups are represented on it?

(3) Is the director of the school a nurse, a physician, other (specify)?

(4) Is the director responsible for nursing service in the hospital as well as for the school?

(5) Some information on the budget of the school, source of income, and student payment should be obtained.

(6) Information on living accommodation for students will be needed.

In some countries it may be necessary to obtain additional information regarding the hospital in which the student practises, such as the availability of running water, hot water, toilets, soap, and the like.

Student enrolment

(1) The number of students currently enrolled.

(2) The number of admissions in the current year and, if possible, for five previous years, and the number of graduations for the same period. This information will be necessary in order to calculate production-rates for the area and also the rate at which students drop out of the course. If the reasons for leaving the school are known, they should also be tabulated. The percentage of students who drop out, the year they drop out, and the reasons for their withdrawal may serve as guides for the type of action needed and will often be the basis for recommendations regarding selection of students, type of course offered, and other factors affecting student satisfaction.

(3) Entrance requirements : number of years of schooling required ; health requirements ; other requirements.

(4) The number of years of general schooling undergone by each of the students currently enrolled.

Teaching staff

As previously stated, this type of survey cannot give much qualitative information, but certain facts on the preparation of instructors may be obtained bearing on quality of teaching—although it is well known that theoretical preparation may not, in fact, produce the best worker or teacher in a given instance. It has been generally accepted, however, that people who have had a given preparation for a position will perform their work more adequately than those who have not. For this reason the study might well include information on the educational qualifications and experience of the teaching staff in schools of nursing and in the training courses for auxiliary nursing personnel. This information should probably also be obtained in the hospitals and public-health agencies where the students acquire their field experience. If the students obtain experience in only part of a hospital, information on this subject might be limited to the nurses working in the section where the students practise.

Curriculum

(1) What courses are included in the curriculum (total hours, hours per week, and year in which the courses are taught) ?

(2) Who undertakes the teaching ?

(3) What types of experience does the student have ?

(4) How many weeks in each type of service does the student have ?

(5) How many hours a week, how many weeks a year, and in what hospital is the experience gained ?

(6) What is the sequence of theory and practice ?

(7) Information on the fields of practice. In some countries there is a system of approval by the medical profession or government which indicates the level of care given in the various hospitals in the country. Elsewhere this system does not exist, and it may be necessary to obtain first-hand information about hospital care and the adequacy of hospital facilities. Students should have their experience in hospitals with at least as high a level as the average for the country. The numbers of hospitals which receive students should be listed, together with the name of the hospital and the type of experience obtained in each.

Public-Health Nursing

In view of the great need for public-health nurses, information should be obtained regarding the public-health experience offered to students, and those public-health agencies which might be used for this purpose.

Auxiliary Training

With regard to the training of auxiliary personnel, answers to the following questions should be sought :

(1) Are there any schools or defined training courses ?

(2) If not, do hospitals give orientation to new workers ?

(3) How long is the training course ?

(4) Is any other on-the-job training offered ?

(5) If there are schools or training courses :

- Who runs them ?
- How long is the course ?
- How much of the course consists of classwork ?
- How much of the course consists of practice ?
- How often during the year is the course given ?
- How many students are there in each course ?
- What are the entrance requirements (educational, other) ?
- What provision is there for refresher courses ?

ANNEX 1

COMPILATION AND CLASSIFICATION OF DATA

A few sample forms [12] which may be used for obtaining and compiling basic information are included in this annex.

It is recognized that neither the number of categories of nursing personnel nor the grouping of workers in hospital, public health, etc., as given in these forms, will be applicable in many countries. Each country has already defined its categories of nursing personnel and will use these in place of those given here. Each country will also decide how it should classify its fields of work—such factors as similarity of preparation, place of preparation, and source of funds for payment of workers, may influence this decision. They should be grouped in such a way that recommendations, when made, can be applied to the various classifications in these tables.

Definitions of Categories of Nursing Personnel

Each category or group of persons undertaking, on a regular basis, any type of nursing work for which they receive compensation may be defined in the following terms :

(1) Title (what the persons in this category or group are called)
(2) Duties (list the main duties actually performed)
(3) Amount of general education required
(4) Nursing education required
(5) Licence or registration required

An example is given of a definition of the most highly qualified category in a mythical country.

(1) Title : Category X

(2) Duties :

(*a*) direction and supervision of hospital nursing services ;
(*b*) responsibility for nursing care of patients in hospitals ;
(*c*) teaching and supervision of auxiliary nurses ;
(*d*) giving of certain medications and treatment ;
(*e*) giving of intravenous fluids or medications ;
(*f*) teaching patient and family, as required ;
(*g*) with special preparation, teaching in schools for Category-X nurses ;
(*h*) with special preparation, teaching in schools for auxiliary nurses.

(3) Amount of general education required : 11 years ; completion of secondary schooling (but this may be waived if candidate can pass examinations. Most Category-X personnel have had only 8 years, i.e., completion of primary schooling).

(4) Nursing education required : 30 months in school of nursing approved by the national nursing body.

(5) Licence or registration required : Yes.

[12] For convenient presentation of the sample forms in this study, highest qualified nurses are designated Category X, and auxiliary nursing personnel Category Y ; specially prepared nursing personnel, such as fever nurses and children's nurses, are included under Category Z. The most highly qualified group of midwives has been designated Category MX and the others, Category MY. These categories have been used for illustrative purposes only—some countries will have many more categories, others less. However, the same type of information should be collected for each category existing in the country.

SAMPLE FORM I *

Collection of Information from Individual Institutions and Agencies

Name of Hospital, Institution, or Agency .....

Address of Hospital, Institution, or Agency .....

Number of nursing personnel employed												
title	category X		category Y		category Z		category MX		category MY		total	
	full-time **	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time
Administrators and supervisors												
Nursing staff												
Total												

* This form to be taken or sent to each institution and agency employing nursing personnel if this information is not available at headquarters.

** Full-time employment is : x hours per day, x hours per week.

SAMPLE FORM II *

Collection of Information from Persons Performing Nursing Duties

Information on each person doing nursing duties in the hospital, or clinic, or public-health agency :

Age ..... Sex .....

Year of completion of school of nursing or training school .....

If not graduated from any school or training course, year started work .....

Preparation .....

Education

1. General education : number of years in school .....
2. Nursing education : basic—name and place of school .....
   number of months in school .....
   post-basic (if any)—name and place of school .....
   .....
   number of months in school .....
   on-the-job training .....

Experience

Organization and place	From (year)	To (year)
.....	.....	.....
.....	.....	.....

Positions now held

Where do you work (name of agency or employer) ?	What do you do ?	How many hours per week do you work ?
.....	.....	.....
.....	.....	.....

* To be used when this information is not available at headquarters ; to be sent only to persons in the categories or groups for which this information is needed as indicated in Chapter 2 (page 16).

Sample form II might be sent to the head of each institution or agency in which nursing personnel work. If this procedure is followed, a sufficient number of copies should be sent to allow one for each person doing any nursing, and a few extra. The covering letter of explanation might well point out that the information will be considered confidential, and that it will be used only to compile statistics for the whole area as a basis for planning to meet the nursing needs. If the individual's name is not requested on the form, attention should also be called to this fact in the covering letter.

If it is possible to visit hospitals, clinics, health agencies, and other places where nursing personnel are working, more satisfactory information will probably be obtained. One method of obtaining the information is to have meetings with the personnel, to explain the purpose of the study and the use that will be made of the information. The form might then be distributed and each item explained, after which the surveyor might circulate in the group to give help in filling in the forms and to answer any questions. This procedure may entail several meetings, as all nursing personnel cannot usually meet at one time. For many reasons this procedure may not be practicable and other methods may be used, such as explaining the questionnaire to the head of the institution and asking him to distribute the cards and send them to headquarters, or explaining the procedure to the director together with his assistants or supervisors. The decision as to the method used will rest primarily with the director of the agency, although other factors, such as limitations of the study, or of the director's time, or language difficulties, etc., may influence the choice.

SAMPLE FORM III *

Number of Nursing Personnel, by Fields of Nursing Work

Field of work	Category X	Category Y	Category Z (specify)	Other categories (specify)	Category MX	Category MY	Total
Hospitals							
Public health							
Nursing education							
Health centre and hospital combined							
Doctor's offices and clinics (private)							
Private duty							
Other							
Total							

* This is a summary sheet of the information obtained on sample form I for all institutions and agencies, classified according to fields of nursing.

SAMPLE FORM IV *

Number of Nursing Personnel in Special Hospitals

Field of work	Category X	Category Y	Category Z (specify)	Other categories (specify)	Category MX	Category MY
Tuberculosis hospital (or sanatorium)						
Mental hospital						
Children's hospital						
Total						

* This is a summary sheet of the information obtained from hospitals on sample form I, classified according to type of patients cared for in the hospitals.

SAMPLE FORM V *

Number of Nursing Personnel in General Hospitals, by Type of Hospital Control

Type of control	Category X	Category Y	Category Z (specify)	Other categories (specify)	Category MX	Category MY	Total
Government							
Religious							
Private physicians							
Other							
Total							

* This is a summary sheet of the information obtained from hospitals on sample form I, classified according to type of hospital control. Classification may also be made by size of hospital, or by any other suitable method.

SAMPLE FORM VI

Summary of Number of Nursing Personnel in Hospitals, by Type of Position and Category of Nurse

title	Number of nursing personnel employed											
	category X		category Y		category Z		category MX		category MY		total	
	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time	full-time	part-time
Administrators and supervisors												
Nursing staff												
Total												

SAMPLE FORM VII *

Preparation of Category-X Nursing Personnel Employed by Public-Health Agencies

General education	Administrators, supervisors		Field nurses	
	number	%	number	%
Schooling				
4 years but no more				
6 years but no more				
8 years but no more				
10 years but no more				
12 years but no more				
More than 12 years				
Nursing education—basic				
2 years full-time school of nursing				
3 years full-time school of nursing				
Postgraduate education				
Less than 1 year				
1 year or more				

* This is a summary sheet of the information obtained on sample form II for Category X, classified according to position in the organization, and preparation by education and experience.

SAMPLE FORM VIII *

Preparation of Category-Y Nursing Personnel Employed by Public-Health Agencies

General education	Administrators, supervisors		Field nurses	
	number	%	number	%
Schooling				
4 years but no more				
5 years but no more				
6 years but no more				
7 years but no more				
8 years but no more				
9 years but no more				
10 years but no more				
11 years but no more				
12 years but no more				
Special training for the job				
Some full-time instruction				
Some organized in-service training				

* This is a summary sheet of the information obtained on sample form II for Category Y, classified according to position in organization, and preparation by education and experience.

SAMPLE FORM IX *

Population in Age-Group 15-19, According to Number of Years of General Schooling Completed, and Speciality Education Entered Upon

Population in 15-19 age-group	Number of persons							
	completing 6 years of schooling	completing 8 or 9 years of schooling	completing 11 or 12 years of schooling	entering university	entering nursing	entering medicine	entering social work	entering teaching
Male								
Female								
Total								

* This form enables the relationship between the size of the population in the age-group 15-19, and the number of persons completing various levels of schooling, to be seen. It is fully recognized that the persons completing these levels of schooling may not all be in the 15-19 age-group but, as the majority of them will fall within it, its use is satisfactory for practical purposes.